

**CLAIMS**

1. Connector (1) comprising ports to receive optical ferrules and to correspond to single-mode to multi-mode conversions and vice versa, comprising an input optical port (2) and an output optical port (3),  
5 characterized in that it comprises a set of two lenses each with a flat face (14, 15), interposed between the two optical ports and placed against a plate made of transparent material to enable an adaptation of transmission of the light rays in space and in energy density, the two lenses having respective diameters and radii of curvature that are different to form a fanning out of the  
10 beam of light rays, from narrow to wide or in the other direction, from one optical port to the other

2. A connector according to claim 1, characterized in that a focal point (24) of each of the lenses is located in the space constituted by the plate made of transparent material.

15 3. A connector according to one of the claims 1 to 2, characterized in that the transparent plate forms a divergent-convergent optical device.

4. A connector according to one of the claims 1 to 3, characterized in that the two lenses have different diameters (20, 21) and/or  
20 radii of curvature (22, 23).

5. A connector according to one of the claims 1 to 4, characterized in that the transparent plate (16) has a length of about one millimeter.

25 6. A connector according to one of the claims 1 to 5, characterized in that it is provided with two detachable sets of lenses, especially in order to correspond to two modes of conversion from a single-mode propagation to a multimode propagation or vice versa, this multimode propagation being capable of taking two types of propagation.

30 7. A connector according to one of the claims 1 to 6, characterized in that the plate, made of a transparent material that is preferably glass (17), is overmolded by the lenses.

8. A connector according to one of the claims 1 to 7, characterized in that the plate made of a transparent material that is preferably glass is overmolded by an array of lenses.

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9. A connector according to claim 8, characterized in that lenses overmolded on a face of the plate are lenses different from each other.

10. A connector according to one of the claims 7 to 9, characterized in that the lenses are made of resin overmolded on the plate.